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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/757,156

01/14/2004

Jimmie Earl DeWitt JR.

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EXAMINER

RUTTEN, JAMES D

ART UNIT

PAPER NUMBER

2192

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/757,156

**Applicant(s)**

DEWITT ET AL.

**Examiner**

J. Derek Rutten

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/14/04, 5/31/06, 10/03/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-17 have been examined.

#### *Information Disclosure Statement*

2. Although a concise explanation of the relevance of the information is not required for English language information submitted with an IDS, applicants are encouraged to provide a concise explanation of why the English-language information is being submitted and how it is understood to be relevant. Concise explanations (especially those which point out the relevant pages and lines) are helpful to the Office, particularly where documents are lengthy and complex and applicant is aware of a section that is highly relevant to patentability or where *a large number of documents are submitted* (especially the IDS filed 1/14/04) and applicant is aware that one or more are highly relevant to patentability. See MPEP 609.04(a).
3. The information disclosure statement filed 1/14/2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language (i.e., reference BJ). It has been placed in the application file, but the information referred to therein has not been considered.
4. The information disclosure statement filed 1/14/2004 fails to comply with the provisions of 37 CFR 1.98(b) and MPEP § 609 because the listing of related applications does not include the eight digit application number (the two digit series code and the six digit serial number), and some do not include the filing date. It has been placed in the application file, but the information

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referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing elements will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

### *Specification*

5. The disclosure is objected to because of the following informalities: The listing of related applications on pages 1 and 2 should contain the proper application serial numbers. Appropriate correction is required.

### *Double Patenting*

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 2, 7, 12, and 13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 7, 8, 11, 14-16, 18 and 21 of copending Application No. 10/757,237 (hereinafter '237) in view of "Accurate and Practical Profile-Driven Compilation Using the Profile Buffer" by Conte et al. (hereinafter "Conte"). For example:

In regard to claim 1, the '237 application claim 1, reads:

*A method ("method") of autonomically reorganizing code of a computer program, comprising the steps of:*

*monitoring branch count per instruction statistics, wherein the branch count per instruction statistics are generated from the results of a set of hardware counters that count branches taken per instruction of the computer program; See '237 claim 1 lines 3-7*

*identifying a plurality of branch instructions for application code being compiled;  
associating a plurality of hardware counters with the plurality of branch instruction;  
using the plurality of hardware counters to autonomically count all of the plurality of branch instructions that are executed in parallel to generate a plurality of branch statistics;*

The '237 application does not expressly disclose: *determining whether a block of code is to be reorganized, wherein the block of code comprises a set of instructions; in response to the step of determining, locally reorganizing the block of code such that*

*fewer branches are taken.* However, Conte teaches this. See page 36, bottom of column 1, e.g. “superblock scheduling.” Conte generally describes the use of hardware counters to collect profile information used in various optimizations including “superblock scheduling,” which makes a determination in order to rearrange basic blocks in the order that they tend to occur. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Conte’s branch counters with the ‘237 application’s branch instructions in order to gather accurate profile information (see Conte top of column 1 page 37).

This is a provisional obviousness-type double patenting rejection.

***Claim Rejections - 35 USC § 101***

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 12-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 12 is directed to a “computer program product in a computer readable medium.” However, page 25 of the specification describes such computer readable medium as including “wireless communications.” Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O’Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of

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patentable subject matter set forth in Sec. 101. First, a claimed signal is clearly not a "process" under § 101 because it is not a series of steps. A claimed signal has no physical structure, does not itself perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine. A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter. A product is a tangible physical article or object, some form of matter, which a signal is not. In contrast, a tangibly claimed computer-readable medium (e.g. magnetic or optical disk) encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Claims 13-17 are dependent upon claim 12 and are rejected for the same reason. For further information, see Official Gazette, Nov. 22, 2005, 1300 OG 142, "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", which can be found online at <<http://www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm>>.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 recites: "switching a then/else statement..." However, this phrase does not appear to be complete. Switching a then/else statement with what? The word "switching" typically involves switching one thing *with* another. In the case of claim 6, there is only a

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then/else statement, and no other thing with which to switch. For the purpose of further examination, this limitation will be interpreted in light of page 21 of specification to mean -- swapping the location of then and else statements--.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-4, 7, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by “Accurate and Practical Profile-Driven Compilation Using the Profile Buffer” by Conte et al. (hereinafter “Conte”).

In regard to claim 1, Conte discloses:

*A method of autonomically reorganizing code of a computer program (see Abstract), comprising the steps of:*

*monitoring branch count per instruction statistics, wherein the branch count per instruction statistics are generated from the results of a set of hardware counters that count branches taken per instruction of the computer program; See page 37, section 2.1, e.g. “profile buffer.” Also see Figure 1 on page 38. This buffer is used to count the number of times a branch is taken.*



*determining whether a block of code is to be reorganized, wherein the block of code comprises a set of instructions; in response to the step of determining, locally reorganizing the block of code such that fewer branches are taken.* See page 36, bottom of column 1, e.g. “superblock scheduling.” Conte generally describes the use of hardware counters to collect profile information used in various optimizations including “superblock scheduling,” which rearranges basic blocks in the order that they tend to occur.

In regard to claim 2, the above rejection of claim 1 is incorporated. Conte further discloses: *wherein the step of determining whether a block of code is to be reorganized is based on the branch count per instruction statistics.* See bottom of page 36, column 1, e.g. “profile-driven superblock formation.”

In regard to claim 3, the above rejection of claim 1 is incorporated. Conte further discloses: *wherein prior to the step of reorganizing the block of code, execution of the computer program is halted.* See top of page 36, column 2, e.g. “After these multiple executions... Finally, the original program is recompiled...”

In regard to claim 4, the above rejection of claim 1 is incorporated. Conte further discloses: *wherein reorganization of the block of code results in instructions of the block of code being more contiguous.* See bottom of page 36, column 1, e.g. “superblock formation.”

In regard to claim 7, Conte discloses:

*A computer system* (see column 1 paragraph 2 page 36, e.g. "PA-RISC"). All further limitations have been addressed in the above rejection of claim 1.

In regard to claims 10 and 11, the above rejection of claim 7 is incorporated. All further limitations have been addressed in the above rejection of claims 3 and 1, respectively.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 5, 6, 8, 9, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conte in view of "Compilers: Principles, Techniques, and Tools" by Aho et al. (hereinafter "Aho"), in view of U.S. Patent No. 6,006,033 to Heisch (hereinafter "Heisch").

In regard to claim 5, the above rejection of claim 1 is incorporated. Conte does not expressly disclose: *wherein reorganizing the block of code is performed locally by modifying an if/then/else clause condition*. However, Aho teaches conditional if/then/else clauses. See Fig. 8.23. Aho does not expressly disclose modification of conditional

clauses. However, Heisch teaches modification of a conditional clause. See column 6 lines 20-44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Aho's conditional clauses and Heisch's modification with Conte's reorganization in order to operate more efficiently (see Heisch column 6 lines 37-41).

In regard to claim 6, the above rejection of claim 1 is incorporated. Conte does not expressly disclose: *wherein reorganization of the block of code is performed locally by [swapping the location of then and else statements] of an if/then/else clause of a branch instruction of the block of code.* However, Aho teaches conditional if/then/else clauses. See Fig. 8.23. Aho does not expressly disclose swapping clauses. However, Heisch teaches modification of a conditional clause. See column 6 lines 30-37. Heisch's modification essentially teaches swapping out of the "then" clause. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Aho's else clause and Heisch's modification with Conte's reorganization in order to operate more efficiently (see Heisch column 6 lines 37-41).

In regard to claims 8 and 9, the above rejection of claim 7 is incorporated. All further limitations have been addressed in the above rejection of claims 5 and 6, respectively.

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In regard to claims 16 and 17, the following rejection of claim 12 is incorporated.

All further limitations have been addressed in the above rejection of claims 5 and 6.

16. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conte in view of Heisch.

In regard to claim 12, Conte does not expressly disclose: *A computer program product in a computer readable medium*. However, Heisch teaches this in FIG. 1 and column 14 lines 40-65. All further limitations have been addressed in the above rejection of claim 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Heisch's product with Conte's reorganizing in order to distribute the software.

In regard to claims 13-15, the above rejection of claim 12 is incorporated. All further limitations have been addressed in the above rejection of claims 2-4, respectively.

### ***Conclusion***

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571)272-3703. The examiner can normally be reached on T-F 6:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jdr



TUAN DAM  
SUPERVISORY PATENT EXAMINER